



U.S. Department of Energy
Office of River Protection

P.O. Box 450, MSIN H6-60
Richland, Washington 99352

NOV 06 2006

06-WTP-147

Mr. C. M. Albert, Project Manager
Bechtel National, Inc.
2435 Stevens Center Place
Richland, Washington 99354

Dear Mr. Albert:

CONTRACT NO. DE-AC27-01RV14136 – TRANSMITTAL OF U.S. DEPARTMENT OF ENERGY (DOE), OFFICE OF RIVER PROTECTION (ORP) DESIGN ASSESSMENT NUMBER D-06-DESIGN-031: REVIEW OF BECHTEL NATIONAL, INC.'S (BNI) GLASS FORMER STORAGE FACILITY (GFSF) AND GLASS FORMER (GF) DESIGN

The purpose of this letter is to notify BNI that ORP intends to perform an assessment of the GFSF and GF design. The design consisting of the GFSF building, receipt, storage and blending equipment, GF transporting equipment, and GF equipment within the vitrification facilities will be evaluated in relation to: (1) the adequacy of the GF design; (2) the Waste Treatment and Immobilization Plant (WTP) Contract and BNI design requirements; (3) whether all GF safety structures, systems, and components are incorporated into the GF design; and (4) whether results of previous BNI design reviews are incorporated into the GF design.

The DOE assessment team will include team members from ORP. The Assessment Plan is transmitted by attachment to this letter. BNI is requested to schedule the availability of the appropriate engineering support personnel during this assessment to interact with assessment team members, including providing material as requested, scheduling interviews, and providing programmatic overview of the GF design. An entrance meeting with BNI management and assessment support personnel was held on October 31, 2006, and an exit meeting will be scheduled during December 2006.

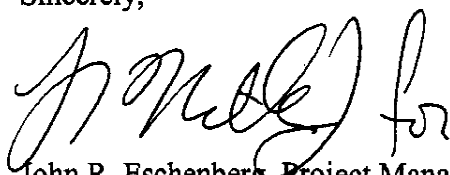
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Mr. C. M. Albert
06-WTP-147

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If you have any questions, please contact me, or your staff may call Lewis F. Miller, Jr., Acting Director, WTP Project Engineering Division, (509) 376-6817.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Eschenberg for".

John R. Eschenberg, Project Manager
Waste Treatment and Immobilization Plant Project

WED:MAR

Attachment

cc w/attach:
W. Clements, BNI
W. S. Elkins, BNI
K. Reutell, BNI
J. Roth, BNI
G. Shell, BNI
BNI Correspondence

06-WTP-147
Attachment

NOV 06 2006

**U.S. DEPARTMENT OF ENERGY, OFFICE OF RIVER PROTECTION
DESIGN ASSESSMENT PLAN**

**REVIEW
BECHTEL NATIONAL, INC.
GLASS FORMER STORAGE FACILITY AND
GLASS FORMER INTERFACES**

OCTOBER 2006

Design Assessment: D-06-DESIGN-031

U.S. Department of Energy, Office of River Protection

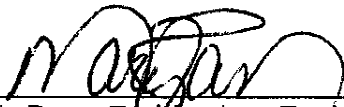
**U.S. DEPARTMENT OF ENERGY (DOE), OFFICE OF RIVER PROTECTION (ORP)
DESIGN ASSESSMENT PLAN**

**REVIEW
BECHTEL NATIONAL, INC.
GLASS FORMER STORAGE FACILITY AND
GLASS FORMER DESIGN**

OCTOBER 2006

Design Assessment: D-06-DESIGN-031


Submitted by:



Mary A. Ryan, Facility Area Engineer
WTP Engineering Division Assessment Lead

Date 10-19-06

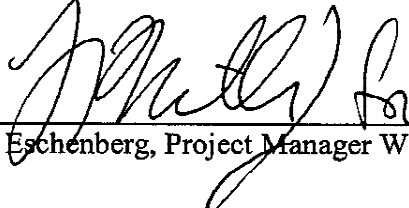
Concurrence:



Lew Miller Jr., Acting Director
WTP Engineering Division

Date 10-24-06

Approval



John Eschenberg, Project Manager WTP

Date 10-24-06

1.0 BACKGROUND, PURPOSE, AND OBJECTIVES

1.1 BACKGROUND

The U.S. Department of Energy (DOE), Office of River Protection's (ORP) mission is to retrieve and treat Hanford Site tank waste and close the tank farms to protect the Columbia River. In order to complete one major component of this mission, ORP awarded Bechtel National, Inc. (BNI) a contract for the design, construction, and commissioning of the Waste Treatment and Immobilization Plant (WTP) at the Hanford Site in Richland, Washington. In order to meet the requirements of WTP contract, DE-AC27-01RV14136, to support the continuous vitrification process, BNI is designing a Glass Former Storage Facility (GFSF). This facility is comprised of an enclosure and silos that house 13 bulk glass former chemicals along with associated material handling equipment. In addition, Glass Former (GF) equipment is located in the Low-Activity Waste (LAW) and High-Level Waste (HLW) Facilities.

1.2 PURPOSE

The purpose of this assessment is to evaluate the physical equipment/components of the GFSF design such as, receipt, storage and blending equipment, GF transporting equipment as well as HLW and LAW GF equipment. These physical components will be evaluated in relation to the objectives identified in Section 1.3 of this plan. Additionally, this assessment will not include an evaluation of the GF chemicals in relation to melter throughput requirements.

1.3 OBJECTIVES

The objectives of this assessment are to evaluate the GFSF building, receipt, storage and blending equipment, GF transporting equipment as well as HLW and LAW GF equipment in relation to: (1) the functional and operational adequacy of the GF design; (2) the GF WTP Contract and BNI design requirements. These requirements such as, the WTP Contract, BNI design specifications and calculations are depicted in Section 7.0 of this plan; (3) whether all GF safety structures, systems, and components (SSC) are incorporated into the design; and (4) evaluating whether results of previous BNI GF design reviews were incorporated into the design.

2.0 SCOPE

The scope of this assessment will include BNI and subcontractor design documents such as, drawings, specifications, calculations, test results, datasheets, design change documentation, instrumentation and control features related to the GFSF building, receipt, storage and blending equipment, GF transporting equipment as well as HLW and LAW GF equipment.

3.0 PREPARATION

- a. Identify ORP assessment team.
- b. Notify BNI that ORP will be conducting the GFSF Design Assessment, number D-06-DESIGN-031.

- c. Identify documents to review, including the results of previous contractor external or internal assessments.
- d. Identify contract requirements and contractor design requirements.
- e. Prepare and implement schedule of Design Assessment activities.

4.0 EVALUATE AND IDENTIFY, RESOLVE, OR DOCUMENT ISSUES

The ORP Design Assessment Team will evaluate BNI documentation in relation to WTP Contract and BNI design requirements. During ORP's evaluation, lines of inquiry (LOI) will be documented and given to BNI's point of contact (POC) for resolution. BNI's responses to LOI questions will be utilized as reference information during the Design Assessment Team's evaluation of the GF design.

5.0 REPORTING

The Design Assessment Team Lead will periodically brief ORP management and the Contractor POC during the assessment. The Team Lead, with assistance from the team, will prepare a Design Assessment Report that summarizes review activities, results, conclusions, and recommendations.

6.0 SCHEDULE OF ACTIVITIES

Attachment 1.0 lists the schedule of assessment activities.

7.0 WTP CONTRACT REQUIREMENTS DE-AC27-01RV14136 AND WTP DESIGN DOCUMENTS

The documents provided by BNI, during this design assessment, will be reviewed in relation to WTP Contract requirements and BNI WTP design documentation, as follows:

REQUIREMENT	SECTION/PARAGRAPH (and as applicable)	
WTP Contract DE-AC27-01RV14136	<ul style="list-style-type: none"> • C.7 Facility Specification, paragraph (a) (11) Functional Design Requirement • C.7 Facility Specification, paragraph I; WTP expandability requirements 	<ul style="list-style-type: none"> • C.7 Facility Specification, paragraph (d) (2) (i); HLW Feed Preparation • C.7 Facility Specification, paragraph (d) (3) (i); LAW Feed Preparation
Basis of Design (BOD) 24590-WTP-DB-ENG-01-001	<ul style="list-style-type: none"> • Section 6.0 Process Basis of Design • Paragraph 6.1.2 LAW Melter Feed 	<ul style="list-style-type: none"> • Paragraph 6.1.3 HLW Melter Feed
Operations Requirements Document 24590-WTP-RPT-OP-01-001	<ul style="list-style-type: none"> • 3.3.2.3 LAW Glass Former Feed Hoppers 	<ul style="list-style-type: none"> • 3.3.4.10 Glass Formers Facility

REQUIREMENT	SECTION/PARAGRAPH (and as applicable)	
Preliminary Safety Analysis Report to Support Construction Authorization: <u>BOF</u> 24590-WTP-PSAR-ESH-01-002-06 <u>HLW</u> 24590-WTP-PSAR-ESH-01-002-04 <u>LAW</u> 24590-WTP-PSAR-ESH-01-002-03 Safety Envelope Documents <u>BOF</u> 24590-WTP-SED-ENS-03-002-05 <u>HLW</u> 24590-WTP-SED-ENS-03-002-04 <u>LAW</u> 24590-WTP-SED-ENS-03-002-03	BOF: <ul style="list-style-type: none"> Paragraph 2.9.15 Glass Former Storage Facility Paragraph 3.3.2.1.2 Process and By-Product Chemicals Paragraph 3.3.3.17 Glass Former Storage Facility Appendix A; Table 3A-4, Table 3A-9 and Table 3A-10 HLW: <ul style="list-style-type: none"> 3.3.2 Hazard Identification Results 3.3.5.1.9 Maintenance Activities on Contaminated Equipment 3.3.5.2.3 Backflow from HFP to the Melter Glass Former Feed Hopper 3.4.1.1.1.1 Accident Scenario 3.4.4.1 Analysis of a HLW Process Vessel Hydrogen Deflagration Table 3A-3 HLW Process Chemicals Table 3A-6 Energy Sources of the HLW Table 3A-10 Seismic Category of HLW SSCs 4.3.1.2 System Description 4.3.15 Glass Former Feed Isolation 4.4.23 Glass Former Feed Line Table 4A-2 Important to Safety: Description and Basis for Safety Significant Structures, Systems, and Components 5.5.3 Limiting Conditions for Operation – Glass Former Lower Slide Valve and Purge Air Operability 	HLW continued: <ul style="list-style-type: none"> Table 5A-1 Hazard and Accident Analysis and Technical Safety Requirement Cross Reference Table 4A-1 Important to Safety: Description and Basis for Safety Class Structures, Systems, and Components LAW: <ul style="list-style-type: none"> 3.3.2.1.3 Process and By-product Chemicals 3.3.3.6 Reagents Table 3A-2 LAW Process Chemicals Table 3A-5 Major LAW Energy Sources by Process System
Safety Requirements Document 24590-WTP-SRD-ESH-01-001-02	<ul style="list-style-type: none"> Document Part – 4.0 Engineering and Design; Section 4.2 Confinement Design; Safety Criterion 4.2-3; bullet 2 “slurries containing glass formers within piping”, Appendix H – Section 3.0 Corrosion and Erosion Mechanisms and Solutions; Paragraph 3.10 Erosion 	<ul style="list-style-type: none"> Appendix H – Section 4.0 Corrosion and Erosion Allowance; fifth bullet

8.0 DOCUMENTATION

The final report will be formally issued once the draft review comments have been resolved. Any Findings, Assessment Follow-up Items, or Open Issues identified in the report will be assigned a number, and tracked to resolution through Corrective Action Reporting System by DOE-ORP. These assigned numbers shall also be tracked to resolution by the Contractor through the Correspondence Control Number that will be assigned to the transmittal of the report from ORP to the Contractor.

9.0 CLOSURE

The Assessment Team Leader, with concurrence of the WED Division Director, shall confirm that Findings, Assessment Follow-up Items, and/or Open Items from this review are adequately resolved.

10.0 REFERENCES

DE-AC27-01RV14136 WTP Contract, December 2005

DOE Order 226.1, Implementation of Department of Energy Oversight Policy, dated approved, September 15, 2005

ORP DI 220.1, Rev 1, Conduct of Design Oversight, dated January 26, 2006

ORP M 412.1 Consolidated Action Reporting System, dated, August 8, 2001

BOF, 24590-WTP-PSAR-ESH-01-002-05, Rev 2, dated March 31, 2006

HLW, 24590-WTP-PSAR-ESH-01-002-04, Rev 2, dated March 31, 2006

LAW, 24590-WTP-PSAR-ESH-01-002-03, Rev 2, dated March 31, 2006

BOF, 24590-WTP-SED-ENS-03-002-05, Rev 1c, dated September 25, 2006

HLW, 24590-WTP-SED-ENS-03-002-04, Rev 1d, dated September 25, 2006

LAW, 24590-WTP-SED-ENS-03-002-03, Rev 1c, dated September 13, 2006

Basis of Design (BOD) 24590-WTP-DB-ENG-01-001, Rev 1h, dated August 03, 2006

Safety Requirements Document Volume II, 24590-WTP-SRD-ESH-01-001-02, Rev 4c, dated September 28, 2006

Operations Requirements Document, 24590-WTP-RPT-OP-01-001, Rev 2, dated May 05, 2003

Glass Former Facility (GFF) Facility Description, 24590-BOF-FD-G-01-002, Rev A, dated January 29, 2002

System Descriptionn for Glass Former Reagent (GFR) System, 24590-BOF-3YD-GFR-00001, Rev B, dated March 26, 2003

ATTACHMENT 1.0**Table 1 – Schedule**

Activity Description	Responsibility	Schedule
Identify and notify team members.	Ryan/Miller	10/01/06
Develop Design Assessment Plan and Approve	Ryan/Miller	10/23/06
Obtain documents from Contractor and develop lines of inquiry.	BNI/Team	10/31/06
Entrance meeting with Contractor to outline objectives, scope, schedule, and establish points of contact.	Team	10/31/06
Review Contractor/Subcontractor GFSF and GF design documents, participate in relevant internal meetings and meet with Contractor as required.	Carol Babel GF LAW Ed Randklev GF HLW Mark Ramsay GF Electrical Mary Ryan GF BOF	11/13/06
Team members prepare individual design assessment reports	Carol Babel GF LAW Ed Randklev GF HLW Mark Ramsay GF Electrical Mary Ryan GF BOF	11/17/06
Team Lead Completes Draft Design Assessment Report	Mary Ryan	11/27/06
ORP Draft Report Review.	ORP	11/30/06
Resolve comments and issue Final Report including close out with Contractor.	Team	12/05/06

NOTES:

- (1) Schedule subject to change through Assessment Team Lead.
- (2) Team Lead will notify BNI POC of schedule changes as applicable.